THE EFFECT OF FOREIGN DIRECT INVESTMENT ON ECONOMIC GROWTH: THE INSTITUTIONAL THRESHOLD

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Abstract *- This paper examines whether the effect of foreign direct investment on economic growth is dependent upon the institutional level for five regions (SSA, MENA, Europe, Asia and America). Using GMM system covering the period from 1984-2013, our results highlight the role of institutional development in moderating the ambiguous impacts of FDI on GDP growth. Under the threshold regression, technique developed by Caner and Hansen (2004) we find that the index of institutions matter for all groups except for the America group. The fact of taking the components of institutions reveal that above the threshold of government stability and the respect of law and order FDI enhances GDP growth.*

Key-words - FOREIGN DIRECT INVESTMENT; GROWTH; INSTITUTIONAL DEVELOPMENT; THRESHOLD EFFECT

Classification JEL - F21, C34, F43, O16

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1. INTRODUCTION

A voluminous literature exists that explores the impacts of FDI on the host's socio-economic well-being (Borensztein et al., 1998; Carkovic and Levine, 2002). Yet, the findings are diverse, and sometimes far from conclusive (Meyer, Bevan, and Estrin, 2004). The aim of this paper is to assess the role of institutions on the effectiveness of FDI' effects on growth. One particularity of this study is the introduction of threshold analysis. This part relies on the idea that the impact of FDI on growth depends on a critical level of institutions developed by several authors (Meyer and Sinani, 2009; Jude and Levieuge, 2013). It leads us to consider 5 subsamples of countries according to the World Bank regional decomposition (MENA, Europe, America, Asia and SSA) and 3 income levels (high, middle and low income countries).

According to the economic literature, FDI may affects growth mainly through three channels. This works through first the linkages between FDI and foreign trade flows. Second, the spillovers and other externalities vis-à-vis the host country; and third the direct impact on structural factors in the host economy (OCDE, 2002). Theoretical models show different ways in which FDI affect growth. FDI can be a source of human capital augmentation and technological change in developing countries since it promotes the use of more advanced technology by domestic firms (De Mello Jr, 1997). Through capital accumulation in the host country, FDI is expected to boost growth by encouraging the incorporation of new inputs and technologies in production function of the recipient economy. Likewise, FDI stimulates a host economy's growth through the technological know-how transfer and human capital (Carkovic and Levine, 2002) creating the ''first-order'' effects. Subsequently, second-order effects, including the mobility of advanced technology, management system, and skilled labor for local firms will inflow to the host country (De Mello and Sinclair, 1995; Hale and Long 2006). This, in turn, enhances the host environment's ability to absorb other FDI, creating clusters of FDI and pools of talented managers and a skilled labor force in the host economy (Borensztein et al., 1998). FDI also offers demonstration effects, that is, their superior operational efficiency encourages local firms to place more emphases on technology investments for productivity gains that contribute to the economic growth of the host country (Meyer and Sinani, 2009). According to De Moello (1997), this impact should be lower in technological leaders than in technological laggards.

However, despite the arguments and evidence in support of the positive impacts of FDI on growth, some empirical findings suggest the contrary. Sen (1998) indicates that multinationals may have an adverse reaction in the host country R&D in order to continue to hold a technological advantage compared to local firms. He points out the increase in payments of royalties that will lead to a negative impact on the balance of payments. Vissak and Roolaht (2005) explain that the host country can become dependent on technologies introduced by multinationals. These authors argue that workers with high education may leave the country, since there are no R&D activities that they can engage in the host country. Furthermore, Ford et al. (2008) state that local authorities, verifying that multinationals are a source of training and improving the levels of edu-

cation in the country, reduce public spending in this area which mitigate the effect of training of the labor force provided by FDI. Mencinger (2003) reports that FDI has a higher impact on imports than on exports, which influences negatively on the balance of payments. This can be explained by the fact that multinationals use goods and raw materials, which are most of the time not available in the host country (OECD, 2002). Vissak and Roolaht (2005) note that the purpose of improving the balance of payments through the initial financial flows received is not always achieved in the long run. This can be explained by the repatriation of multinationals subsidiaries profits to their countries of origin (OECD, 2002; Hansen and Rand, 2006; Ozturk, 2007). Finally, another negative effect of FDI on growth is caused by the competition created in access to credit. Lim (2001), Carkovic and Levine (2002) and Sylwester, (2005) explain that multinationals are partly financed by the host countries financial markets. This increase the costs of credit and the access to credit changes. Chakraborty and Basu (2002) show that the problems in access to credit are mainly experienced by local firms which have a smaller structure, and then find it difficult to support the increased costs of credit, plus their weak bargaining power with financial institutions (compared to multinationals).

It seems that FDI plays an ambiguous role in economic growth (Greenaway and Kneller, 2007; Alguacil, 2011) with little support for the positive effect (Meyer, 2004). A recent literature survey by Bruno and Campos (2013) shows that 50% of empirical studies report a significantly positive effect of FDI on growth, 11% find a negative effect while 39% find growth to be independent of FDI.

The explanations for these conflicting results have pointed to methodological issues (Moran et al., 2005) and to the different absorptive capacity of host countries (Blomström, Kokko, and Mucchielli, 2003; Lipsey and Sjöholm, 2005). Empirical research seems to converge to the conclusion that the effect of FDI on economic growth is conditional on several local circumstances. The literature has identified the level of development (Blomstrom et al., 1994), trade openness (Balasubramanyam, 1996), human capital (Borensztein et al., 1998), financial development (Alfaro et al., 2004), the business environment (Busse et al., 2008) and the sector allocation (Aykut and Sayek, 2007) to influence the effect of FDI on growth.

Since the late 1990s there has been a growing consensus among researchers that recognize the role of institutions the ‘‘rules of the game’’ in shaping multinational corporations (MNCs) activities and the spillover effects they produce (North, 2005; Acemoglu et al., 2005; Dunning and Lundan, 2008)). Institutions, broadly defined, consist of informal constraints such as norms, culture, and customs, or the more purposive formal ones embodied in particular political rules and organizational structures.

Institutions could be seen as one channel through which FDI promotes economic growth. Acemoglu et al. (2002) and Cantwell et al. (2010) argue that institutional environment significantly varies the degree and even the direction of FDI impacts in the host economy. This institutions-based view on FDI is particularly relevant to developing countries where institutions differ signifi-

cantly from those in developed countries and forcefully shape the way multinationals behave and interact with local sectors. Hoskisson et al. (2000) and Peng et al. (2008) argue that local institutions in terms of private property protection, legal and regulatory enforcement, product and intermediary market development, can moderate the various impacts of FDI on growth. More specifically, a more developed institutional setting motivates and facilitates both foreign and local firms to compete for output rationalization and curtails the negative impacts of FDI on growth (Wang et al. 2013). However, poor institutions can bring additional costs to FDI. This can be the case of corruption for instance (Wei, 2000). Likewise, due to high sunk costs, FDI is especially vulnerable to any form of uncertainty, including uncertainty stemming from poor government efficiency, policy reversals, graft or weak enforcement of property rights and of the legal system in general. Stein and Daude (2001) use five out of six governance indicators provided by Kaufmann et al. (1999) and show that inward FDI is significantly influenced by the quality of institutions like political instability and violence, regulatory burden, rule of law and graft. Using the same database Globerman and Shapiro (2002) find good governance to impact positively both on FDI inflows and outflows, although the latter effect is only significant for relatively big and developed countries. Furthermore, Azman-Saini et al. (2010) find that the effect of FDI on growth is contingent on the level of economic freedom in the host countries. They point out that countries which promote greater freedom of economic activities will gain significantly from the presence of multinational corporations (MNCs).

Along this strand of research, some studies have also been aimed to analyze the existence of an institutional threshold beyond which FDI impacts positively growth. Jude and Levieuge (2013) use a Panel Smooth Transition Regression (PSTR) for 94 developing countries over the period 1984-2009. They find that, democratic accountability and bureaucracy have an immediate effect on fostering FDI-led growth as opposite to internal and external conflict. They find that any effort above the threshold of 2.09 for law and order increase the elasticity of FDI on growth by 0.126. Using the same method of the PSTR, Brahim and Rachdi (2014) point for a sample of 19 MENA countries over the period 1984-2011, that any improvement made by the MENA region just below the threshold value of 0.006 for Investment profile and 0.206 for government stability is likely to result in a sharp increase of the elasticity of growth with respect to FDI. Meyer and Sinani (2009) estimate an institutional threshold (economic freedom and corruption) for the advanced and less advanced economies employing the mathematical derivative method. Their results show that FDI impacts positively growth if the level of economic freedom and corruption are above respectively the threshold of 56.6 and 5.69.

There are a number of studies investigating the role of institutions in conditioning the positive impact of FDI flows on growth (Ali et al., 2010; Buchanan et al., 2012). However there is very limited research dealing with the threshold effect of institutions in explaining the positive effect of FDI on growth by region and by level of income (high, middle and low income). Seeking to refine the growth effect of FDI, we investigate its conditionality on the institutional quality. In this paper we argue that a well-developed institutions enhance the

overall benefits of FDI on economic growth. As, we consider institutional heterogeneity to be a plausible explanation for the different results of empirical studies.

Our research has several original features compared to the existing literature. The empirical analysis shows that institutional quality conditions the effect of FDI on economic growth more in the middle-income countries than in high income ones. Furthermore, we highlight the importance of heterogeneity in analyzing the FDI-growth relationship, as we divide the 5 groups of SSA, MENA, Europe, Asia and America by level of income to determine the institutional threshold level. The existence of such a threshold level allows us in the one hand to analyze the indirect effect of FDI on growth through institutions for countries that are below and above the institutional threshold. In the other hand to compare the effect of FDI on growth between high, middle and low income countries that are above the institutional threshold. We take into account twelve components of the institutional quality (from ICRG database) to analyze the most important institutional variables that condition the positive impact of FDI on growth

The paper is organized as follows. Section 2 presents the model and methodology being used. Section 3 presents the results of the threshold estimation of institutions and section 4 discusses the threshold of its components. Section 5 highlights the main conclusions.

2. MODEL AND METHODOLOGY

2.1. Model

To test the hypothesis of the threshold effect of institutions on the impact of FDI in economic growth, the following Eq.(1) is particularly well suited to capture the presence of contingency effects. It also offers a rich way of modelling the influence of the institutional development on the impact of FDI in economic growth. We use the dynamic panel threshold regression approach suggested by Kremer, Bick and Nautz (2013) to explore the nonlinear behavior of FDI in relation to the economic growth[1]. The model such as (1) is based on lessons drawn from the literature review. It has been used in the analysis of trade and growth (El Khoury and Savvides, 2006), knowledge spillovers (Falvey, Foster, and Greenaway, 2007), foreign direct investment and growth (Azman-Saini et al., 2010), and FDI and income inequality (Wu and Hsu, 2012), among other topics. This study adopts a macroeconomic approach. It does not take into account the financial variables as they are highly correlated with the institutional factors (Minea and Villieu, 2010; Ayadi et al., 2015).

The model based on the threshold regression takes the following form:

[1] Kremer, Bick and Nautz (2013) extend the Hansen (1999) original static panel threshold estimation and the Caner and Hansen (2004) cross-sectional instrumental variable (IV) threshold model, where generalized methods of moments (GMM) type estimators are used to deal with endogeneity.

$$\boldsymbol{Y_{it}} = \mu_i + \alpha_1 Y_{it-1} + \alpha_2 G_{it} + \alpha_3 GFCF_{it} + \alpha_4 INFRA_{it} + \alpha_5 CREATION_{it} + \alpha_6 KH_{it} + \alpha_7 TRADE_{it} + \alpha_8 FDI_{it} + \boldsymbol{\beta_1 FDI_{it}} * \mathbf{I}(\boldsymbol{INST_{it} \leq \gamma}) + \boldsymbol{\delta_1} * \mathbf{I}(\boldsymbol{INST_{it} \leq \gamma}) + \boldsymbol{\beta_2 FDI_{it}} * \mathbf{I}(\boldsymbol{INST_{it} > \gamma}) + \varepsilon_{it} \quad (1)$$

where *i* is country index and *t* is time index.

Y is the log of GDP (constant 2005 US$), FDI is the stock of foreign direct investment, net inflows in percentage of GDP. Using the share of GDP allows us to take into account the relative country size.

Table 1. Macroeconomic variables

LABEL	DESCRIPTION	SOURCES
Y_{it}	Gross Domestic Product at market prices (constant 2005 US$).	WDI, 2014
Institutions (INST)	The resulting index ranges between zero and 100 and a larger value means lower political risk. It is computed through an average of twelve different indicators from the ICRG database.	International Country Risk Guide (ICRG), 2014
FDI	Foreign Direct Investment: inward stock, in percentage of GDP. It is the value of the share of their capital and reserves (including retained profits) attributable to the parent enterprise, plus the net indebtedness of affiliates to the parent enterprises.	UNCTAD, 2014
GFCF	Gross Fixed Capital Formation (% of GDP). It includes land improvements (fences, ditches, drains, and so on); plant, machinery, equipment purchases; the construction of roads, railways, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. According to the 1993 SNA, net acquisitions of valuables are also considered capital formation.	WDI, 2014
Technology creation (CREATION)	-Number of patent grants per 1 million people -Number of publications in scientific and technical journals per 1 million people	WIPO, World Bank (WDI), 2014
TRADE	Trade is measured by trade in goods and services as a percentage of GDP at constant price	WDI, 2014
Government consumption (G)	General government final consumption expenditure includes all government current expenditures for purchases of goods and services. It also includes most expenditure on national defense and security, but excludes government military expenditures.	WDI, 2014
Human capital (HK)	-Literacy rate, adult total (% of people ages 15 and below) -Enrolment in tertiary education per 100,000 inhabitants -Mean years of schooling of adults	World Bank (WDI) UNESCO, UNDP, 2014
Technology Infrastructure (INFRA)	-Fixed broadband Internet subscribers per 100 people -Telephone fixed-lines per 100 people -Mobile cellular subscriptions per 100 people -Electric power consumption (kWh per capita)	WDI, 2014

INST is institutional quality measured by ICRG. This database, compiled by the Political Risk Services (PRS) Group, provides information on several risk indicators grouped in three categories: political, economic and financial risks. For the purpose of our study we use the economy index risk. In every case the lower the value, the higher the risk, and the higher the value the lower the risk. (See Table 4 for the description of the institutional variables). This database covers a long period of study beginning from 1984 as opposite to the Kaufmann database which begins from 1996. Although, the ICRG database includes a large number of variables (12), however Kaufmann database provides only 6

variables. INST is the threshold variable used to split the sample into regimes or groups and γ is the unknown threshold parameter. INST is the threshold variable used to split the sample into regimes or groups and γ is the unknown threshold parameter.

I(.) is the indicator function, which takes the value 1 if the argument in the indicator function is valid, and 0 otherwise. This type of modeling strategy allows the role of FDI to differ depending on whether institutions are below or above some unknown level of γ. In this equation, institutions act as sample-splitting (or threshold) variables. The impacts of FDI on growth will be $\boldsymbol{\beta_1}$ and $\boldsymbol{\beta_2}$ for countries with a low and high regime, respectively. Following Bick (2010), we allow for differences in the regime intercepts (δ1). The variable institution is considered as an endogenous variable.

X_{it} denotes the vector of explanatory regressors, which include lagged values of the dependent variable $\boldsymbol{Y_{it}}$. These control variables are hypothesized to affect economic growth. These determinants are: human capital, technology creation, gross fixed capital formation, trade openness, government consumption (used as an indicator of fiscal policy). Their definitions are presented in Table 1. The entire variables are in logarithm. μ_i is unobserved country-specific effect term, and $\boldsymbol{\varepsilon_{it}}$ is a white noise error term.

The matrix of correlation (Table 1A, Appendix 1) indicates the correlation between the explanatory variables. Most of the correlation's coefficients are low: they are between 0.02 and 0.47. As the sign of the Pearson correlation coefficient is positive, we can conclude that there is a positive correlation between Government consumption, GFCF, infrastructure, creation, HK, institutions and FDI with growth. That is, growth increases with these variables. The variable CREATION is correlated with HK (0.50) and with INST (0.63). For this reason, we run the Variance Inflation Factor to test the muticolinearity of this variable (CREATION). Results point that the VIF of the variable CREATION is 2.15 (Table 1B, Appendix 1). It is less than 10, we conclude that there is no evidence of multicollinearity.

We use five groups of countries: SSA, MENA, Europe, America and Asia. Each group is divided into high, middle and low income countries according to the World Bank classification[2]. The list of countries is given in Appendix 1, Table 1C.

2.2. Methodology

2.2.1. Estimation of a threshold effect

According to Kremer et al. (2013), the standard within transformation and first differencing methods to eliminate the country-specific fixed effects in the

[2] According to the World Bank, low-income economies are defined as those with a GNI per capita, calculated using the World Bank Atlas method, of $1,045 or less in 2014; middle-income economies are those with a GNI per capita of more than $1,045 but less than $12,736; high-income economies are those with a GNI per capita of $12,736 or more.

dynamic panel are not applicable because both violate the distribution assumptions underlying Hansen (1999) and Caner and Hansen (2004). Thus, the forward orthogonal deviations transformation suggested by (Arellano and Bover, 1995) is used to eliminate the fixed effects. The unique feature of this transformation is that serial correlation of the transformed error terms is avoided and it maintains the uncorrelatedness of the error terms. This ensures that the estimation procedure derived by Caner and Hansen (2004) for a cross-sectional model can be applied to the dynamic panel specification such as Eq.(1).

Following Caner and Hansen (2004), there are three steps to estimate the specification coefficients. First, a reduced form regression is estimated for the endogenous variables INST, as a function of the instruments, Z_{it} by the ordinary least squares (OLS) approach and obtain the fitted values of $\hat{b}$ $INST_{it}$. Second, by substituting the predicted values of $\hat{b}$ $INST_{it}$ into Eq.(1) we estimate the threshold parameter k with the OLS method. Denote the resulting sum of squared residuals by S (k). This step is repeated for a strict subset of the support of the threshold variable INST. Finally the estimator of the threshold value k is selected as the one associated with the smallest sum of squared residuals, i.e

$\gamma\hat{} = \text{argmin}\ \gamma\ Sn(\gamma)$.

In accordance with Hansen (2000) and Caner and Hansen (2004), the critical values for determining the 95% confidence interval of the threshold value are given by

$\Gamma = \{\gamma : LR(\gamma) \leq C(\alpha)\}$,

where $C(\alpha)$ is the 95% percentile of the asymptotic distribution of the likelihood ratio statistic $LR(\gamma)$. The underlying likelihood ratio has been adjusted to account for the number of time periods used for each cross section (see Hansen, 2000). Once $\gamma\hat{}$ is determined, the slope coefficients can be estimated by the generalized method of moments (GMM) for the previously used instruments and the previous estimated threshold $\gamma\hat{}$.

2.2.2. Econometric methodology

This study employs a system generalized-method-of moment (GMM) panel estimator, which was finalized by Blundell and Bond (1998). This estimator is better over others because (i) it is able to control for the presence of unobserved country-specific effects and (ii) it is also able to control for a simultaneity bias caused by the potential endogeneity of the explanatory variables. To eliminate the country specific effect Arellano and Bond (1991) imply first-difference transformation of Equation (1) as follows:

$$\Delta y_{it} = \alpha(\Delta y_{it-1}) + \beta_1(\Delta FDI_{it}) + \beta_2(\Delta INST_{it}) + \beta_3[\Delta(FDI * INST)_{it}] + \beta_4(\Delta X_{it}) + \Delta\varepsilon_{it} \quad (2)$$

In order to address the issue of endogeneity and the correlation between $\Delta y_{it-1}$and $\Delta\varepsilon_{i,t}$, this problem can be solved by using higher-order lag of the regressors as instrument (Arellano and Bond, 1991). However, the validity of the moment conditions must be fulfilled to yield unbiased and consistent estimators. In fact, this econometric method has one serious limitation where instrumental variables are weak if the explanatory variables are persistent

(Alonso-Borrego and Arellano, 1999; Blundell and Bond, 1998). To overcome this limitation, system GMM estimator has been introduced by Arellano and Bover (1995). Two specification tests are employed to test the validity of the model. Firstly, the consistency of the system GMM estimator requires no second order serial correlation in difference error term εit. Next, would be Hansen test of over identifying restrictions. The Non-rejection of the null of both tests indicates that the model is correctly specified and the instruments are valid.

System GMM estimator uses lagged differences of y_{it} as instruments for equations in levels and lagged levels of y_{it} as instruments for equations in first differences. In our case, we use these instruments with other instruments built by the method of Lewbel (2012). In the first stage, each endogenous variable is regressed on the Z vector (Z is a subset of the exogenous X vector included in the regression and excluding the endogenous variables). Then the vector of residuals (Re) is retrieved. Finally Y is regressed on the explanatory variables. The instruments are computed as follow: Instrument_X= (X- E(X)) * residual, with E(X) the mean of X.

3. THE EFFECT OF FDI ON GDP GROWTH: ESTIMATION OF THE INSTITUTIONAL THRESHOLD

The threshold values for institutions and the effect of FDI on GDP growth is displayed in Table 2. Given the p-value of AR(2) and Sargan tests, we accept all specifications. The p-values suggest that, for all the five groups, low debt regime slope coefficient ($\beta 1$) is significantly different from high debt regime slope coefficient ($\beta 2$) and therefore the threshold estimates are significant.

Table 2. The effect of FDI nexus institutions on growth by region

VARIABLES	MENA (1)	MENA (2)	AMER (3)	AMER (4)	ASIA (5)	ASIA (6)	EUROPE (7)	EUROPE (8)	SSA (9)	SSA (10)
Y_{it-1}	0.679***	0.620***	0.806***	0.817***	0.927***	0.921***	0.820***	0.858***	0.869***	0.881***
	(0.0297)	(0.0695)	(0.0241)	(0.0222)	(0.0118)	(0.0113)	(0.0153)	(0.0201)	(0.0144)	(0.0126)
G	0.234**	0.491*	-0.144*	-0.141	-0.171***	-0.183***	-0.0650	0.122	-0.133**	-0.129***
	(0.111)	(0.275)	(0.0781)	(0.0883)	(0.0491)	(0.0518)	(0.0707)	(0.151)	(0.0561)	(0.0459)
GFCF	-0.276	-0.0450	0.227*	0.225*	0.0874	0.0753	0.0799	0.00694	0.0395	0.0416
	(0.221)	(0.162)	(0.135)	(0.124)	(0.0775)	(0.0738)	(0.0725)	(0.0847)	(0.0518)	(0.0426)
INFRA	0.915	1.526***	0.190	0.160	0.111	0.106	-0.00584	-0.00919	-0.00440	0.0175
	(0.711)	(0.418)	(0.252)	(0.241)	(0.0924)	(0.0978)	(0.180)	(0.245)	(0.0143)	(0.0170)
CREATION	-0.0384	0.039	-0.0119	-0.0311	0.110***	0.072***	0.0327**	0.0639***	0.051	-0.0266
	(0.0252)	(0.0310)	(0.0274)	(0.0270)	(0.0406)	(0.0234)	(0.0260)	(0.0242)	(0.0176)	(0.0146)
HK	0.486	0.961**	-0.0204	0.251	0.378***	0.239**	0.0215*	0.143*	0.0809	0.0341
	(0.411)	(0.394)	(0.302)	(0.349)	(0.131)	(0.190)	(0.235)	(0.368)	(0.0655)	(0.0582)
TRADE	0.294***	0.520**	0.515***	0.450***	0.096***	0.125***	0.426***	0.442***	0.180***	0.165***
	(0.108)	(0.232)	(0.0717)	(0.0720)	(0.0296)	(0.0332)	(0.0518)	(0.0571)	(0.0516)	(0.0461)
FDI	0.310	0.438	0.399	0.0975	0.256*	0.635*	0.421***	0.530*	-0.196***	-0.116**
	(0.464)	(0.708)	(0.253)	(0.373)	(0.188)	(0.151)	(0.130)	(0.656)	(0.0609)	(0.0558)
FDI*INST	0.575*		0.654		0.426*		0.601***		0.385***	
	(0.726)		(0.390)		(0.269)		(0.183)		(0.131)	
FDI*(INST<= γ)		-0.377		0.0847		-0.325*		0.811		-1.063*
		(0.189)		(0.0651)		(0.467)		(0.257)		(0.658)
FDI*(INST> γ)		0.051**		0.0787*		0.133*		0.117***		0.325***
		(0.0421)		(0.0432)		(0.174)		(0.737)		(0.0990)
δ1		-0.555*		0.0552		-0.460*		-0.455		4.996**
		(0.464)		(0.160)		(1.010)		(0.457)		(2.012)
Threshold γ		**0.54**		**0.63**		**0.60**		**0.70**		**0.51**
Constant	0.559***	0.243**	1.746***	1.755***	0.699***	0.537***	0.480***	1.272***	0.487***	0.244***
	(1.157)	(0.337)	(0.943)	(0.431)	(0.474)	(1.274)	(1.085)	(0.449)	(0.475)	(0.411)
Observations	608	608	992	992	1,065	1,065	1,312	1,312	1,024	1,024
Number of id	19	19	31	31	34	34	41	41	32	32
AR(2) P-value	0.206	0.359	0.171	0.630	0.186	0.475	0.398	0.172	0.453	0.516
Sargan P-value	0.130	0.146	0.584	0.498	0.498	0.390	0.260	0.179	0.175	0.146

*Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1.*

Table 2 summarizes the results for the MENA, America, Asia, Europe and SSA groups using the threshold regressions of equation 1. The results show that institutions mitigate the negative effect of FDI on growth for the SSA group (column 9). The coefficient of FDI is negative; it turns to be positive for this group when we introduce INST (institutions). For the MENA (column 1), Asia (column 5) and Europe (column 7), the improvement of the level of institutions makes the impact of FDI on growth higher. It can be seen through the coefficient of the interaction (FDI*INST) as it becomes significant in the MENA region. For the Asia and the Europe group the additional effect of institutions on FDI has increased the impact of FDI on growth from 0.256 to 0.541 in the Asia group, and from 0.385 to 0.601 in the Europe group. The positive sign of the interaction (FDI*INST) means that the benefit of FDI is higher with a better institutional environment. Host countries should decrease the political risk in their countries to benefit more from FDI. Such a policy in a host country would generate a favorable environment for the spillover effects stemming from multinational companies to domestic companies. Also, the contribution of multinational companies would be easier and higher in a favorable business environment.

Table 3. The effect of threshold of institutions by income on FDI and growth by region

VARIABLES	MENA (1)	America (2)	Asia (3)	Europe (4)	SSA (5)
FDI	0.112	0.490	0.488**	0.228*	-0.0325*
	(0.129)	(0.285)	(0.606)	(0.0453)	(0.0229)
FDI*(INST ≤ γ)_high income			-		
FDI*(INST > γ)_high income			0.979**		
			(0.790)		
FDI*(INST ≤ γ)_middle income	0.070	-0.725	-0.809**	0.0107	1.646
	(0.482)	(0.934)	(0.552)	(0.146)	(1.110)
FDI*(INST > γ)_middle income	0.241*	0.564**	0.327*	0.572**	0.266***
	(0.377)	(0.753)	(1.779)	(0.267)	(0.0840)
Number of id	19	31	34	41	32

MENA region

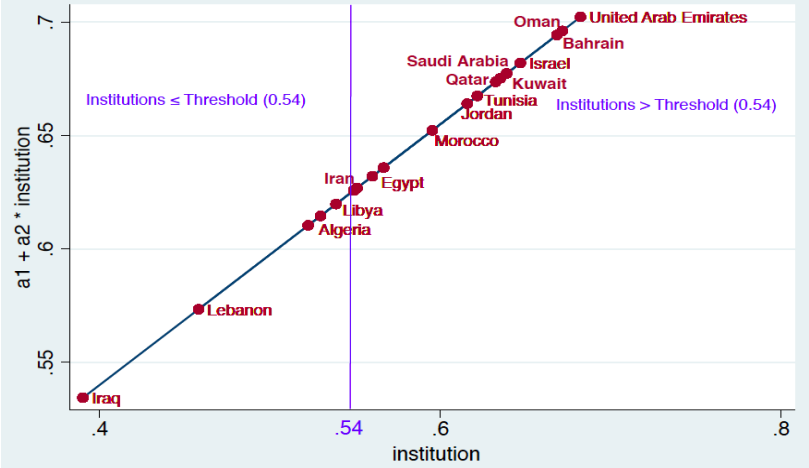
According to the regression of the MENA region, FDI impacts positively growth only for countries with an institutional level (INST) above the threshold of 0.54 (column 2). Therefore 14 of the 19 countries in the regression pass the threshold (Figure 1). Conversely, FDI has a negative but a non significant effect on growth for 5 of the 19 countries in the sample (Algeria, Iraq, Lebanon, Libya and West Bank and Gaza). For these countries, the low level of institutions[3] (below 0.54) impedes them from the benefit of FDI on growth. This means that the existence of high political instability leads for example to corruption and restrain countries to benefit from FDI. For example, during the period 1984-2013, Iraq and Lebanon had the lowest level of institutions (0.39 and 0.43 respectively). More precisely, it is due to high level of corruption and others forms of cronyism.

[3] Lower level of institutions means higher level of political instability.

This means that institutions are important factors in influencing the effect of foreign direct investment on growth. A minimum level of institutions (0.54) is required in the MENA region to get a positive and significant effect of FDI on growth.

Table 3 presents a summary of the effect of FDI nexus institutions by income on growth for countries above and below the threshold of institutions. Details of the results including all explanatory variables are presented in Table 2A in Appendix 2. In Table 3 we compare between high, middle and low income countries that are above and beyond the threshold level of institutions. Results for the MENA region (column 1) confirm that the effect of FDI on growth is higher in the middle income countries than in the high income countries (0.241**) when the level of institutions is above 0.54.

Figure 1: Threshold level of institution in the MENA region



Countries below 0.54* *(5 countries): High income: none, Middle income: Algeria, Iraq, Lebanon, Libya, West Bank and Gaza.* ***Countries above 0.54* *(14 countries): High income: Bahrain, Israel, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates. Middle income: Egypt, Iran, Jordan, Morocco, Syria, Tunisia, Yemen.*

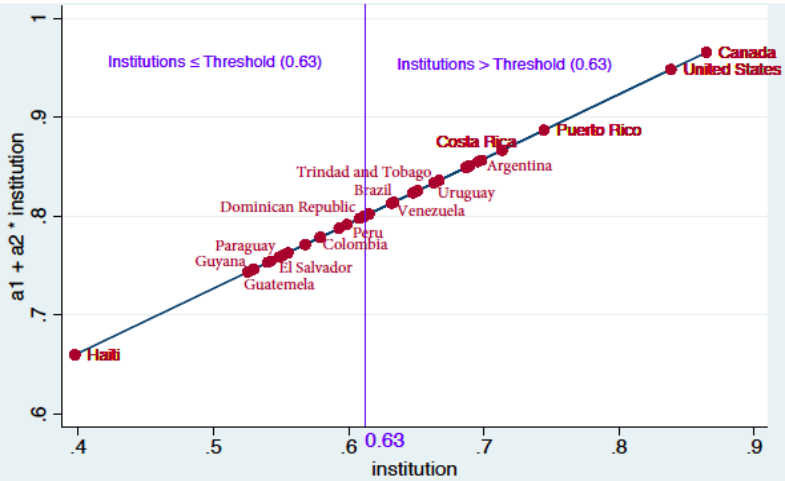
We conclude that for the MENA region institutions raise the effect of FDI on growth as the additional effect of institutions makes the effect of FDI on growth higher. The estimation of the threshold of institutions shows that the effect is positive only for countries, which are above the institutional threshold of 0.54. Furthermore, taking into account the level of income indicates that institutions are more important for FDI in the middle income countries than in the high income countries.

America group

For the America group, institutions add a positive and significant effect to the impact of FDI on growth (0.0787) only for countries above the institutional threshold of 0.63 (Table 2, column 4). Only 15 of 31 countries pass the threshold (Figure 2). We point that, the interaction (FDI*INST) is not significant (Table 2, column 3), but the fact that we divide the sample into countries that are

below and above the threshold highlight that the effect is only positive for countries above the institutional threshold of 0.63. Furthermore, in Table 3 column (2), the effect of FDI on growth is bigger in the middle income countries than in the high income countries when the level of institutions is higher than 0.63.

Figure 2: Threshold level of institutions in the America group



Countries below 0.63* *(16 countries): High income: none, Middle income: Bolivia, Colombia, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Nicaragua, Panama, Paraguay, Peru, St. Vincent and the Grenadines, Suriname.* ***Countries above 0.63* *(15 countries): High income: Canada, Chile, Puerto Rico, St. Kitts and Nevis, Trinidad and Tobago, United States, Uruguay. Middle income: Argentina, Brazil, Costa Rica, Dominica, Jamaica, Mexico, St. Lucia, Venezuela.*

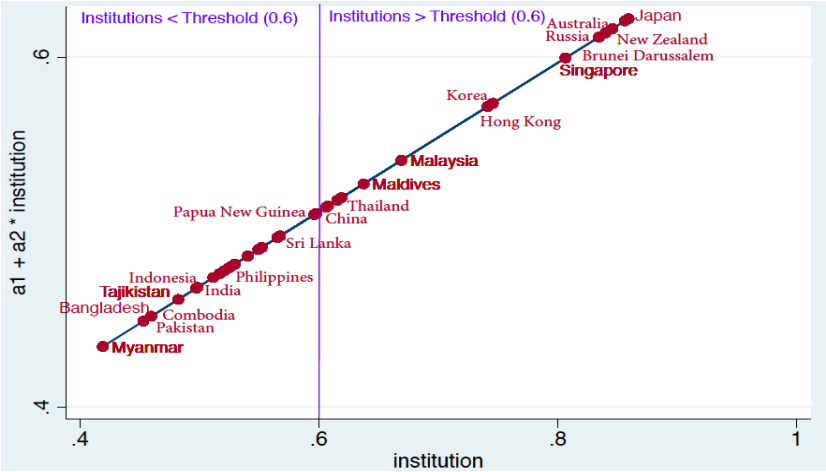
Asia group

In the Asia group, institutions almost double the positive effect of FDI on growth (Table 2, column 5). More precisely the positive effect of FDI on growth appears on countries that are above the threshold institutions of 0.60 (column 6). Only 14 of 34 countries are above the threshold (Figure 3). When institutions are higher than 0.60, the effect of FDI on growth is higher in the high income countries than in the low income countries (Table 3). Furthermore, when institutions are below 0.60, the negative effect of FDI on growth is higher in the low income countries than in the middle income countries.

SSA group

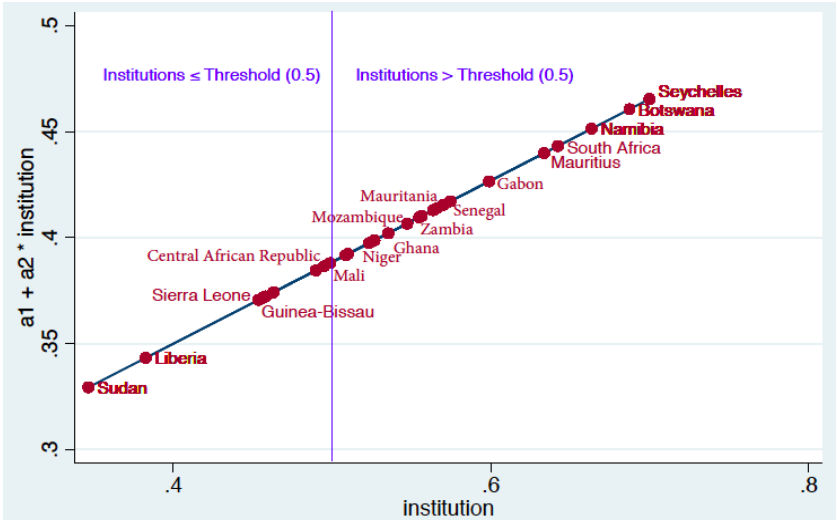
In the SSA group (Table 2, column 9), institutions (INST) mitigate the negative effect of FDI on growth. One percent increase in FDI increases the GDP growth by 0.32 percent if the level of institutions is above 0.50 which represents the mean value of institutions (column 10). Ajide et al., (2014) find the same results for 27 countries of SSA. They show that FDI impacts positively growth if the level of governance is higher than its mean value. Now, if we consider countries that are below the level of institutions 0.5, the effect of FDI on growth is negative. It is the case for 13 of 32 countries (Figure 4).

Figure 3: Threshold level of institution in the Asia group



Countries below 0.6* *(20 countries): High income: none, Middle income: India, Indonesia, Kazakhstan, Kyrgyz Republic, Mongolia, Pakistan, Papua New Guinea, Philippines, Solomon Islands, Sri Lanka, Timor-Leste, Turkmenistan, Uzbekistan, Vanuatu, Vietnam. Low Income: Bangladesh, Cambodia, Myanmar, Nepal, Tajikistan.* ***Countries above 0.6* *(14 countries): High income: Australia, Brunei Darussalam, Hong Kong, Ireland, Japan, Korea, New Zealand, Russia, Singapore. Middle income: China, Malaysia, Maldives, Thailand, Tonga.*

Figure 4: Threshold level of institution in the SSA group



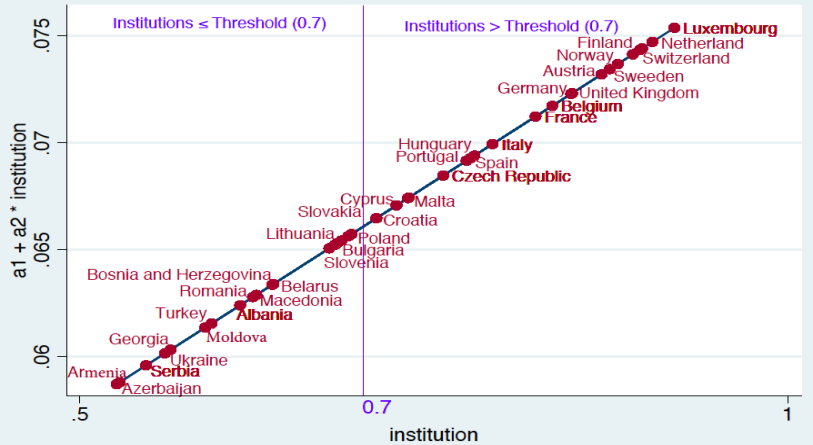
Countries below 0.5: Middle income: Nigeria, Sudan. Low Income: Central African Republic, Ethiopia, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Rwanda, Sierra Leone, Togo, Uganda.* ***Countries above 0.5**: Middle Income: Botswana, Cameroon, Gabon, Ghana, Mauritania, Mauritius, Namibia, Senegal, Seychelles, South Africa, Swaziland, Zambia. Low income: Burkina Faso, Kenya, Madagascar, Malawi, Mozambique, Tanzania, Zimbabwe.*

The effect of FDI on growth becomes positive, once the level of institution is above 0.5. This positive effect is higher in the middle income than in the low countries (Table 3). Results explain that institutions are important in the effect of FDI on growth in the middle income countries that are above 0.50.

Europe group

For the Europe group, FDI has a positive effect. The additional effect of institutions, increase the impact of FDI on growth (Table 2, column 7). Like in the other groups, the threshold level of institutions condition the positive effect of FDI on growth. In this case, FDI contributes positively to growth for countries that are above the institutional threshold of 0.70. There are 27 countries of 41 that are above the threshold (see Figure 5). We highlight that the Europe group has the highest level of institutions, so the latter increase the effect of FDI on growth. In fact, the Europe group has achieved a high and stable level of institutions. Other factors like technology (creation) and human capital (HK) are determinant for FDI and growth (Table 2, column 7 and 8).

Figure 5: Threshold level of institutions in the Europe group



Countries below 0.7: High income: Estonia, Latvia, Lithuania, Poland, Slovenia. Middle Income: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Georgia, Macedonia, Moldova, Romania, Serbia, Turkey, Ukraine. **Countries above 0.7: High Income: Austria, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland, United Kingdom. Middle income: Hungary.*

When the level of institutions is above 0.7 the effect of FDI on growth is higher in the middle income countries than in the high income countries (Table 3).

We conclude that FDI is not affected by the same level of institutions in the different groups. In fact, the effect of institutions is different across the groups and by level of income. Results show that the effect of institutions is more important in the middle income countries. Institutional quality is an important precondition for the positive effect of FDI on growth. This finding is consistent with (Azman-Saini et al., 2010), (Alfaro et al., 2004), (Durham, 2004),

(Borensztein et al., 1998) , among many others, who also find that the impact of FDI on growth depends on other conditions available in the host countries. FDI targeting strategies should therefore take into account the differentiated aspects that matter for FDI.

After studying the overall effect of the institutional threshold on FDI, we focus now on the components of this variable institutions in order to measure the threshold of each component that allows FDI to affect positively growth.

4. THE EFFECT OF THE SUBCOMPONENTS OF INSTITUTIONS NEXUS FDI ON GROWTH

The institutional variable "INST" is composed of 12 variables. These variables are: Government Stability, Socioeconomic Conditions, Investment Profile, Internal Conflict, External Conflict, Corruption, Military in Politics, Religious Tensions, Law and Order, Ethnic Tensions, Democratic Accountability and Bureaucracy Quality. Table 4 presents the definitions of the 12 components of the variable institutions (INST).

Table 4. The 12 components of the variable institutions (INST)

Label	Description	Sources
Government Stability	Measures the government's ability to carry out its policies and to stay in office.	PRS-ICRG (2014)
Socio-economic Conditions	Captures socio–economic pressures at work in society that might restrain government action or elevate social dissatisfaction and thus destabilize the political regime.	PRS-ICRG (2014)
Investment Profile	Assess the investment profile, that is, factors related to the risk of investment that are not covered by other (financial and economic) risk components, such as contract viability (expropriation), profits repatriation or payment delays.	PRS-ICRG (2014)
Internal Conflict	Stands for internal conflict, measuring political violence within the country and its actual or potential impact on governance by focusing on, for instance, civil war, terrorism, political violence or civil disorder.	PRS-ICRG (2014)
External Conflict	Weight external conflict, namely the risk to the incumbent government from foreign action, ranging from non-violent external pressure, such as diplomatic pressure, with holding aid or trade sanctions, to violent external pressures, ranging from cross-border conflicts to all-out war	PRS-ICRG (2014)
Corruption	It evaluates the degree of corruption within the political system	PRS-ICRG (2014)
Military in Politics	Represents the influence of the military in politics, which could signal that the government is unable to function effectively, therefore, the country might have unfavorable environment for business	PRS-ICRG (2014)
Religious Tensions	Measures religious tensions, stemming from the domination of society and/or governance by a single religious group seeking, for instance, to replace civil by religious law or to exclude other religious from the political and social press	PRS-ICRG (2014)
Law and Order	Quantifies Law and Order, that is, the strength and impartiality of the legal system.	PRS-ICRG (2014)
Ethnic Tensions	Assesses the degree of tensions among ethnic groups attributable to racial, nationality or languages divisions.	PRS-ICRG (2014)
Democratic Accountability	Relates the democratic accountability of the government, that is, the responsiveness of the government to its citizens, but also to fundamental civil liberties and political rights.	PRS-ICRG (2014)
Bureaucracy Quality	Stands for the institutional strength and quality of the bureaucracy, which might act as a shock absorber tending to reduce policy revisions if governments change.	PRS-ICRG (2014)

Table 5 summarizes the threshold effect of institutions nexus FDI for the five regions using the twelve institutional variables. The details of the other explanatory variables are presented in Table 2B, 2C, 2D, 2E and 2F in Appendix 2. As an attempt to evaluate the individual effect of institutions on GDP growth and to avoid problems caused by multi-collinearity, we estimate equation (1) adding each institutional variable in succession. This approach was used in the literature by Walsh and Yu (2010).

Results indicate that FDI has a positive effect on growth for the MENA, America and the SSA groups when they are above the threshold level of government stability (column 1). The stability of government allows investors to have a warranty on the viability of their business project at least in the short term. This promotes the goals set by the investor and reduces political risks. Conversely, government instability exhibits the investors to very high risk (changes in laws, conventions or agreements), which can increase costs. We notice that, the coefficient is higher in the MENA region, which means that in case of government stability, the effect of FDI on growth is higher in the MENA region than in the SSA group or the America group. Improving government stability by one point will have an additional effect on growth by 0.24 percent in the MENA region if the level of government stability is higher than 0.42, and by 0.011 percent in the America group if the level of government stability is higher than 0.38. Our results are confirmed in the work of Brahim and Rachdi (2014). They found a threshold level for government stability of 0.5 for the MENA region, which is lower than our threshold (0.54). This difference can be explained by the sample that includes Sudan and Turkey, also by the method of PSTR used to estimate the threshold. Furthermore, in our estimation we take into account the effect for countries that are below and above the institutional threshold to get a clear idea about the effect of FDI on growth.

Table 5. Summary of the effect of FDI nexus institutions

		Government Stability (1)	Socieco. Conditions (2)	Investment Profile (3)	External Conflict (4)	Internal Conflict (5)	Corruption (6)	Military in Politics (7)	Religious Tensions (8)	Law and Order (9)	Ethnic Tensions (10)	Democratic Account. (11)	Bureaucracy Quality (12)
MENA	FDI	**-0.026**	**-0.027**	-0.054*	-0.055**	-0.018	**-0.017**	-0.013	-0.002	**-0.0514***	-0.017	-0.038	**-0.049***
	FDI*(INST≤ γ)	**-0.911***	**0.603**	0.380	-0.359	1.605	**0.060**	0.486	-0.132	**-0.271***	0.160	-0.472	**-0.233***
	FDI*(INST> γ)	**0.243***	**0.015***	0.027	0.0147	-0.015	**0.026***	0.018	0.001	**0.034***	-0.004	0.014	**0.021***
AMERICA	FDI	**0.022**	0.016	0.004	-0.005	0.010	-0.015	-0.010	0.020*	**0.021**	0.017	0.020*	0.010
	FDI*(INST≤ γ)	**0.006**	-0.025	-0.061	-0.006	-0.23***	0.056	0.041	0.241***	**-0.95*****	0.034	-0.033	0.272
	FDI*(INST> γ)	**0.0111***	0.001	-0.0061	0.001	-0.006	-0.001	0.005	-0.010	**0.029***	0.083*	-0.005	0.005
ASIA	FDI	0.0152	0.184	-0.017	**-0.018**	0.272***	0.075	**-0.200***	0.102	0.094	0.051	**-0.038**	0.288
	FDI*(INST≤ γ)	0.129	0.748	-0.271	**1.328**	-0.128	0.057	**-0.080***	0.799	0.534	0.071	**-0.089**	-0.386
	FDI*(INST> γ)	0.007	0.124	0.0537	**0.110***	0.030	0.022	**0.044***	0.0314	0.009	0.027	**0.070***	-0.017
SSA	FDI	**-0.030****	**0.003**	-0.032*	-0.016	**-0.025***	**-0.003**	-0.011	-0.017	-0.011	-0.015	**-0.04*****	**-0.006**
	FDI*(INST≤ γ)	**-1.84*****	**0.977**	-1.162**	-0.90***	**-0.184**	**-0.200**	1.564	0.136	-0.89***	-0.817	**0.209**	**-0.537***
	FDI*(INST> γ)	**0.019*****	**0.011***	0.027	0.008	**0.0145***	**0.014****	-0.002	-0.012	0.001	0.011	**0.022*****	**0.011***
EUROPE	FDI	0.068***	**0.019**	0.078***	0.107***	**0.171*****	0.044***	0.056***	0.049***	**0.055*****	0.042***	**-0.005**	**0.028****
	FDI*(INST≤ γ)	-0.22***	**-0.005**	0.055	-0.14***	**-0.28*****	0.118	0.009	0.0231	**-0.032**	-0.056	**0.014**	**0.079**
	FDI*(INST> γ)	0.006	**0.022****	-0.001	0.032	**0.034*****	0.002	0.004	0.009	**0.014***	0.017	**0.009*****	**0.015*****

** Values in bold indicate the most significant institutional mechanisms that condition the positive impact of FDI on growth. Standard errors *** p<0.01, ** p<0.05, * p<0.1.*

Socio-economic condition can be also a mechanism through which FDI impacts growth. In this case, pressures at work and social dissatisfaction could restrain the activity of the foreign investors. In some cases it could even stop for a few months the project so government cannot profit from this investment. Results of Table 5 indicate that the effect of FDI on growth is higher in the Europe group than in the MENA region and the SSA group when they are above the critical value of socioeconomic conditions of 0.37, 0.35 and 0.11 respectively (column 2). We note that the level of socioeconomic conditions is the highest in the Europe group.

For control of corruption, FDI has a negative effect on growth in the MENA region (Table 5, column 6). But, the additional effect of fighting against corruption makes the impact of FDI on growth positive and significant when the level of corruption is higher than 0.30. It is the same case in the SSA group when corruption is higher than 0.15. Ajide et al., (2014) find a threshold level of corruption for 27 countries of SSA above which FDI impacts positively growth. We highlight that the effect on growth is higher in the MENA region than in the SSA group when they are above the threshold of 0.30 and 0.15 respectively. McCloud and Kumbhakar (2012) find evidence that controlling for corruption reduces the magnitude of unobserved heterogeneity in the FDI–growth relationship. Indeed, developing countries have not the same threshold above which control of corruption has a positive effect on FDI-growth. Results highlight the threshold effect of corruption in explaining these ambiguous outcomes. In case of corruption, the benefits of FDI are diverted for the profit of specific groups (Oligarchy). Meisel and Aoudia (2007) describe this group of insider or interest group. In this case the benefit of FDI will not reach growth.

The effect of FDI on growth becomes positive in case of the variable Law and Order (column 9). The strength and impartiality of the legal system prevent the misappropriation of funds by the group of insiders. They act as a guarantee for the foreign investors as they favor the application of the clauses stated in the contract. They form together a mechanism for growth to benefit easily from FDI. This effect is confirmed if the level of Law and Order is above the threshold of 0.25 for the MENA region, 0.20 for the America group and 0.28 for the Europe group. A one percent improve in FDI will have an additional effect on growth by 0.002 percent in the MENA region (if Law and Order is higher than 0.25), 0.014 in the Europe group (if Law and Order is higher than 0.5) and the highest improve is in the America group by 0.029 percent (if Law and Order is higher than 0.20). However, if the level of Law and Order is weak in the MENA region (below 0.25) and in the America group (below 0.20), FDI impacts negatively growth. In fact, Busse and Groizard (2008), clarify that restrictive employment laws (hiring and firing of employees) create a weak labor market turnover that limits domestic firms gains from technology spillovers. Other type of government regulation can lead to the same results. For example ensuring creditor rights and enforcement of contracts are hard to apply due to high uncertainty, long periods of investment and great expenses. This result may reduce investment in the host country, which lower productivity related to the exploitation of technology spillovers from FDI inflows.

Bureaucracy mitigates the negative effect of FDI on growth for the MENA region and the SSA group when the level of bureaucracy is higher than respectively 0.26 and 0.2 (column 12). For the Europe group, improving the quality of bureaucracy, raise the positive effect of FDI on growth from 0.028 to 0.045. Indeed, this institutional variable measures the ability of bureaucracy to resist to political change that is the stability of administrative procedures. The more the government is stable despite the political changes and the less FDI will be impacted. In contrary, the instability of bureaucracy exposes investors to downturns and often changes in the administrative procedures. This result in an additional cost for investors and limit the achievement of targets set by the foreign investors. So, the impact on growth will be limited (less tax payment). If doing business is subject to many bureaucratic procedures (requiring time and resources), then FDI flows can be prevented from being reallocated to the most productive sectors (Busse and Groizard, 2008).

Aidt and Gassebner (2010) point that democracy is associated with more trade liberalization. The latter leads to a more competitive environment on local market. Higher competitiveness between domestic firms improves their resource allocation and upper efficiency. Indeed, democracy guarantees an enforcement of property rights and the risk of expropriation for foreign investor (Harms and Ursprung, 2002; Jensen, 2008; Jensen, 2003). Our results point that democracy is an important mechanism through which FDI impacts growth for the Asia, and the Europe group (column 12). These results are confirmed if the level of democracy is higher than the threshold of 0.5 for the Asia group, 0.17 for the SSA group and 0.48 for the Europe group. Once the SSA and the Europe group are above their critical values of democracy, the effect of FDI on growth is higher in the middle income than in the high income group.

Results show that for the MENA region, above the threshold of the institutional variables like government stability, fighting against corruption, the respect of law and order and less bureaucracy enable the country to benefit from FDI . As opposite to the America group in which to draw advantage from FDI they should improve government stability, ethnic tension and law and order. It is government stability and democracy that matter most for the SSA group, external conflict and democracy for the Asia group, socioeconomic conditions, law and order and bureaucracy for the Europe group. Values in bold in Table 5 indicates that, the five variables such as: government stability, socioeconomic conditions, law and order, democratic accountability and bureaucracy quality, are the most important institutional variables to benefit from FDI for the 3 groups out of five in this study. Our results confirm the work of Júlio, Pinheiro-Alves, and Tavares (2013). They also find that these variables are important to benefit from FDI.

5. CONCLUSION

The aim of this paper is to test the indirect effect of FDI on growth through institutions for the 5 groups: MENA, Europe, America, Asia and SSA divided into high, middle and low income countries. Our main conclusion is that institutional quality differently modulates the effect of FDI on economic growth for the five groups. This difference is due to the institutional level and to the level

of income of each group. It depends also if the group has reached the institutional threshold. Furthermore, the magnitude of the indirect effect of FDI on growth through institutions depends on the level of income.

The global effect of the interaction between FDI and institutions can hide specific effect of FDI on growth for countries that are below and above the steady state. The method of Caner and Hansen (2004) allows us to divide the region into countries that are above and below the critical-value. Our results highlight the importance of taking into consideration countries that are below and above the threshold level of institutions as it gives a clear idea beyond which level of institutions FDI impacts positively growth.

The magnitudes of the effect of FDI nexus institutions on growth are non-uniform across country groups. The critical value of institutions explains the difference between the groups. A minimum level of institutions is required for the positive impact of FDI on growth. It is found that FDI enhances growth through government stability, socioeconomic conditions, law and order, democratic accountability and bureaucracy quality for three out of the five groups.

Furthermore, a group of countries can be above the institutional threshold level but belongs to different level of income. Results highlight that even if countries are above the institutional threshold, the effect of FDI on growth can be different. This difference is due to the income level of countries. Indeed, above the global institutional level, the positive impact of FDI on growth is more important in the middle income countries than in the high income countries (Nawaz, 2015). However, this result is different depending on the institutional variable. For example, for countries of the MENA region and the Europe group, which have a level of bureaucracy above the threshold, the positive impact of FDI on growth is greater in the middle income countries than in the high income. Nevertheless, above the steady state of the variable corruption, the positive impact of FDI on growth in the MENA region and the Asia group is more important in the high income countries.

Furthermore, we point that some features of institutional quality could pay-off faster in terms of marginal effect of FDI on growth. Therefore, priority should be given to these specific features, as further institutional complementarities would eventually lead to an incremental effect on FDI and growth.

The estimation of a threshold level of institutional quality that conditions the positive effect of FDI on growth highlight that policies will have no benefit for host countries unless there is an improvement of their institutional framework. The finding of "better institutions (above threshold) attract more FDI" should also encourage policy makers to upgrade the local institutional environment before engaging in FDI attraction policies.

APPENDIX 1

Table 1A. Matrix of correlation

	Yit-1	G	GFCF	INFRA	CREATION	HK	TRADE	INST	FDI
Yit-1	1.000								
G	0.073	1.000							
GFCF	0.101	0.133	1.000						
INFRA	0.111	0.022	-0.037	1.000					
CREATION	0.496	0.376	0.179	0.044	1.000				
HK	0.307	0.214	0.219	-0.282	0.503	1.000			
TRADE	-0.101	0.134	0.160	-0.089	0.133	0.226	1.000		
INST	0.471	0.239	0.254	-0.044	0.630	0.433	0.149	1.000	
FDI	0.025	0.024	0.069	-0.031	0.205	0.200	0.264	0.212	1.000

Table 1B. Variance Inflation Factor (VIF)

Variable	VIF	1/VIF
CREATION	2.15	0.46
INST	1.79	0.55
HK	1.51	0.66
G	1.19	0.83
TRADE	1.17	0.85
FDI	1.16	0.86
GFCF	1.10	0.91
INFRA	1.09	0.91
Mean VIF	1.39	

Table 1C. List of countries

Group	Level of income	List of countries
MENA	High income	Bahrain, Israel, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates
	Middle income	Algeria, Egypt, Iran, Iraq, Jordan, Lebanon, Libya, Morocco, Syria, Tunisia, West Bank and Gaza, Yemen
Europe	High income	Austria, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom
	Middle income:	Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Georgia, Hungary, Macedonia, Moldova, Romania, Serbia, Turkey, Ukraine
America	High income	Canada, Chile, Puerto Rico, St. Kitts and Nevis, Trinidad and Tobago, United States, Uruguay
	Middle income	Argentina, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Dominica, Dominican Rep., Ecuador, El Salvador, Guatemala, Guyana, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, St. Lucia, St. Vincent and the Grenadines, Suriname, Venezuela
Asia	High income	Australia, Brunei Darussalam, Hong Kong, Ireland, Japan, Korea, New Zealand, Russia, Singapore
	Middle income	China, India, Indonesia, Kazakhstan, Kyrgyz Republic, Malaysia, Maldives, Mongolia, Pakistan, Papua New Guinea, Philippines, Solomon Islands, Sri Lanka, Thailand, Timor-Leste, Tonga, Turkmenistan, Uzbekistan, Vanuatu, Vietnam
	Low Income	Bangladesh, Cambodia, Nepal, Myanmar, Tajikistan
SSA	Middle income	Botswana, Cameroon, Gabon, Ghana, Mauritania, Mauritius, Namibia, Nigeria, Senegal, Seychelles, South Africa, Sudan, Swaziland, Zambia
	Low Income	Burkina Faso, Central African Republic, Ethiopia, Guinea, Guinea-Bissau, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger, Rwanda, Sierra Leone, Tanzania, Togo, Uganda, Zimbabwe

APPENDIX 2

Table 2A. The effect of threshold of institutions by income on FDI and growth by region

VARIABLES	MENA (1)	America (2)	Asia (3)	Europe (4)	SSA (5)
Y_{it-1}	0.730***	0.986***	0.930***	0.832***	0.855***
	(0.0624)	(0.352)	(0.0472)	(0.0162)	(0.0151)
G	0.262*	0.0233	0.687*	-0.133	-0.176***
	(0.139)	(0.519)	(0.385)	(0.0873)	(0.0606)
GFCF	-0.149	0.625	1.110**	0.136	0.0560
	(0.220)	(1.672)	(0.485)	(0.0905)	(0.0436)
INFRA	1.740***	0.144	1.110*	0.507**	-0.005
	(0.459)	(0.830)	(0.632)	(0.203)	(0.0158)
CREATION	-0.0196	-0.375	-0.153	0.0980***	-0.0692***
	(0.0354)	(0.677)	(0.147)	(0.0370)	(0.0259)
HK	-0.899**	3.104	-1.122	0.736**	-0.00824
	(0.401)	(5.921)	(0.826)	(0.339)	(0.0651)
TRADE	-0.142	-0.199	-0.126	0.460***	-0.235***
	(0.235)	(0.618)	(0.106)	(0.0587)	(0.0538)
FDI	-0.112	0.490	0.488**	-0.002	-0.0325
	(0.129)	(0.285)	(0.606)	(0.0453)	(0.028)
FDI*(INST<= ɣ)_high income			-		
FDI*(INST>ɣ)_high income			0.979**		
			(0.790)		
FDI*(INST<= ɣ)_middle income	0.070	-0.725	-0.809**	-0.0107	1.646
	(0.482)	(0.934)	(0.552)	(0.146)	(0.110)
FDI*(INST>ɣ)_middle income	0.241*	0.564**	0.327*	0.572**	0.266***
	(0.377)	(0.753)	(0.779)	(0.267)	(0.0840)
δ_1	-0.276**	-0.861	-1.801	-0.142	-0.905**
	(0.107)	(1.464)	(1.160)	(0.262)	(1.989)
Constant	0.459*	0.417*	1.448***	0.862***	0.245**
	(0.269)	(0.590)	(0.391)	(0.434)	(0.314)
Observations	608	992	1,065	1,312	1,024
Number of id	19	31	34	41	32
AR(2) P-value	0.177	0.171	0.142	0.211	0.159
Sargan P-value	0.157	0.160	0.156	0.131	0.216

*Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*

Table 2B. The effect of FDI nexus institutions on growth for the MENA region

Institutional Variables	Government Stability	Socio-economic Conditions	Internal Conflict	External Conflict	Investment profile	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountability	Bureaucracy Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Y_{it-1}	0.975***	0.951***	0.944***	0.903***	0.963***	0.952***	0.948***	0.958***	0.952***	0.935***	0.974***	0.922***
	(0.0299)	(0.0227)	(0.0368)	(0.0276)	(0.0207)	(0.0251)	(0.0237)	(0.0332)	(0.0321)	(0.0347)	(0.0333)	(0.0269)
G	0.00686	0.0930	0.114	0.226**	0.0358	0.147	0.145	0.0400	0.0387	0.177	-0.0490	0.191**
	(0.109)	(0.0868)	(0.118)	(0.107)	(0.0937)	(0.108)	(0.105)	(0.112)	(0.126)	(0.110)	(0.137)	(0.0969)
GFCF	0.0220	-0.0414	-0.166**	-0.150*	0.0260	-0.0685	-0.0758	0.0317	-0.208**	-0.0547	-0.158	-0.123
	(0.0738)	(0.0782)	(0.0758)	(0.0882)	(0.0570)	(0.0911)	(0.0851)	(0.0685)	(0.0944)	(0.0816)	(0.106)	(0.104)
INFRA	0.234	0.362**	0.552**	0.730***	0.275*	0.467***	0.381**	0.307*	0.476**	0.637***	0.453**	0.655***
	(0.199)	(0.141)	(0.227)	(0.197)	(0.147)	(0.174)	(0.150)	(0.158)	(0.213)	(0.232)	(0.230)	(0.182)
CREATION	0.000179	-0.0220	-0.00447	-0.00250	-0.0195	-0.0294	-0.0243	-0.00951	0.00545	-0.0178	0.0135	-0.0186
	(0.0159)	(0.0165)	(0.0136)	(0.0153)	(0.0255)	(0.0200)	(0.0203)	(0.0204)	(0.0175)	(0.0141)	(0.0191)	(0.0179)
HK	-0.264*	-0.289**	-0.50***	-0.45***	-0.261**	-0.380**	-0.249	-0.28***	-0.45***	-0.53***	-0.54***	-0.499***
	(0.145)	(0.132)	(0.186)	(0.159)	(0.130)	(0.149)	(0.158)	(0.107)	(0.161)	(0.174)	(0.193)	(0.157)
TRADE	0.0424	0.0782	0.0609	0.133	0.0876	0.0912	-0.0186	0.0706	0.120*	0.0707	0.0734	0.109
	(0.0649)	(0.0625)	(0.0977)	(0.0828)	(0.0748)	(0.0675)	(0.0466)	(0.0875)	(0.0691)	(0.0819)	(0.0640)	(0.0675)
FDI	-0.0263	-0.0272	-0.0542*	-0.055**	-0.0181	-0.0176	-0.0135	-0.00034	-0.0514*	-0.0178	-0.0389	-0.0498*
	(0.0227)	(0.0192)	(0.0293)	(0.0253)	(0.0209)	(0.0192)	(0.0165)	(0.0258)	(0.0286)	(0.0360)	(0.0245)	(0.0266)
FDI*(INST≤ ɣ)	-0.911*	0.603	0.380	-0.359	1.605	0.0607	0.486	-0.132	-0.271*	0.160	-0.472	-0.233*
	(0.516)	(0.749)	(0.464)	(0.349)	(0.979)	(0.286)	(0.303)	(0.168)	(0.373)	(0.248)	(0.361)	(0.169)
FDI*(INST>ɣ)	0.243*	0.0157*	0.0275	0.0147	-0.0153	0.0267*	0.0183	0.000133	0.034*	-0.00449	0.0144	0.0216*
	(0.0189)	(0.0252)	(0.0226)	(0.0159)	(0.0212)	(0.0162)	(0.0130)	(0.0192)	(0.0250)	(0.0289)	(0.0193)	(0.0196)
δ_1	0.473	-0.265	-0.793	0.843	-0.347*	-0.145	-1.362	0.420	-0.777	-0.320	1.274	-0.349
	(0.655)	(1.075)	(0.137)	(0.989)	(0.868)	(0.876)	(0.981)	(0.480)	(0.855)	(0.620)	(1.050)	(0.398)
Threshold ɣ	0.42	0.35	0.26	0.28	0.20	0.30	0.22	0.34	0.25	0.38	0.25	0.26
Constant	0.0457	0.0203	0.604*	0.447	-0.183	-0.127	0.401	-0.121	0.690*	0.0669	0.721*	0.260
	(0.313)	(0.420)	(0.354)	(0.327)	(0.361)	(0.292)	(0.342)	(0.430)	(0.370)	(0.393)	(0.431)	(0.364)
Observations	608	608	608	608	608	608	608	608	608	608	608	608
Number of id	19	19	19	19	19	19	19	19	19	19	19	19
AR(2) P-value	0.126	0.147	0.246	0.172	0.256	0.125	0.163	0.201	0.273	0.139	0.166	0.141
Sargan P-value	0.316	0.449	0.166	0.427	0.195	0.529	0.605	0.693	0.485	0.153	0.290	0.298

Table 2C. The effect of FDI nexus institutions on growth for the Europe group

Institutional Variables	Government Stability	Socio-eco. Conditions	Internal Conflict	External Conflict	Investment profile	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountability	Bureaucracy Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Yit-1	0.965***	0.990***	1.018***	0.996***	1.052***	0.988***	1.016***	0.981***	1.027***	1.017***	1.005***	1.027***
	(0.03)	(0.0167)	(0.0129)	(0.0157)	(0.0279)	(0.0140)	(0.0189)	(0.0142)	(0.0142)	(0.0171)	(0.0180)	(0.0144)
G	-0.0093	-0.0279	0.119	0.101	0.0694	-0.21***	0.0145	-0.0618	0.0190	-0.0136	-0.128	-0.0790
	(0.0975)	(0.0525)	(0.0780)	(0.0805)	(0.0983)	(0.0558)	(0.0614)	(0.0709)	(0.0733)	(0.0562)	(0.0804)	(0.0569)
GFCF	0.133***	0.106***	0.0712**	0.0505	-0.0277	0.118***	0.106***	0.0971***	0.0560*	0.136***	0.0596	0.0719**
	(0.0457)	(0.0289)	(0.0338)	(0.0310)	(0.0462)	(0.0309)	(0.0372)	(0.0331)	(0.0299)	(0.0320)	(0.0379)	(0.0294)
INFRA	-0.0525	-0.105	-0.0315	-0.215**	-0.300**	-0.0595	-0.0162	-0.0870	-0.206**	0.0283	-0.0370	-0.129*
	(0.106)	(0.0936)	(0.093)	(0.0837)	(0.133)	(0.0809)	(0.0922)	(0.0996)	(0.0819)	(0.0907)	(0.0960)	(0.0782)
CREATION	0.0258	0.0129	-0.034**	0.00860	-0.0412	0.0277**	-0.0250	0.0195	-0.0200	-0.0244	-0.0055	-0.0149
	(0.0318)	(0.0140)	(0.0137)	(0.0163)	(0.0259)	(0.0113)	(0.0192)	(0.0152)	(0.0161)	(0.0160)	(0.0186)	(0.0122)
HK	-0.253	-0.0673	-0.228*	-0.0051	-0.299	-0.0732	-0.172	-0.0972	0.139	-0.240*	-0.152	0.106
	(0.161)	(0.124)	(0.135)	(0.117)	(0.209)	(0.118)	(0.130)	(0.151)	(0.101)	(0.138)	(0.138)	(0.110)
TRADE	-0.11***	-0.0170	-0.11***	-0.09***	-0.069**	-0.10***	-0.09***	-0.099***	-0.066***	-0.072**	-0.0058	-0.0351
	(0.0381)	(0.0239)	(0.0317)	(0.0238)	(0.0349)	(0.0280)	(0.0287)	(0.0313)	(0.0198)	(0.0297)	(0.0271)	(0.0324)
FDI	0.068***	0.0198	0.078***	0.107***	0.171***	0.045***	0.056***	0.0495***	0.0551***	0.042***	-0.0006	0.0283**
	(0.025)	(0.0184)	(0.0151)	(0.0128)	(0.0262)	(0.0088)	(0.0091)	(0.0135)	(0.0125)	(0.0140)	(0.0187)	(0.0133)
FDI*(INST≤ ɣ)	-0.22***	-0.0053	0.0550	-0.14***	-0.28***	0.118	0.00921	0.0231	-0.0321	-0.0564	0.0147	0.0792
	(0.0781)	(0.0540)	(0.0574)	(0.0863)	(0.105)	(0.0827)	(0.0422)	(0.0314)	(0.169)	(0.0359)	(0.0311)	(0.0825)
FDI*(INST>ɣ)	0.00631	0.0224**	-0.0015	0.032	0.034***	0.00287	0.00425	0.00982	0.0143*	0.0174	0.04***	0.015***
	(0.0125)	(0.0111)	(0.0104)	(0.0104)	(0.0099)	(0.0056)	(0.0049)	(0.0114)	(0.00737)	(0.0091)	(0.0105)	(0.0058)
δ1	0.565	-0.133*	-0.221	0.0465	0.416	-0.303	-0.0188	-0.0257	-0.0764*	0.30	-0.185**	-0.0198
	(0.231)	(0.109)	(0.201)	(0.304)	(0.284)	(0.260)	(0.150)	(0.162)	(0.525)	(0.120)	(0.0905)	(0.250)
Threshold ɣ	0.40	0.37	0.48	0.54	0.39	0.3	0.41	0.48	0.28	0.5	0.48	0.3
Constant	0.216	-0.186	-0.617*	-0.323	-1.013**	0.726***	-0.370	0.329	-0.490	-0.467*	0.0151	-0.272
	(0.575)	(0.303)	(0.338)	(0.353)	(0.469)	(0.260)	(0.369)	(0.334)	(0.334)	(0.272)	(0.366)	(0.384)
Observations	1,312	1,312	1,312	1,312	1,312	1,312	1,312	1,312	1,312	1,312	1,312	1,312
Number of id	41	41	41	41	41	41	41	41	41	41	41	41
AR(2) P-value	0.147	0.440	0.257	0.147	0.263	0.432	0.452	0.328	0.337	0.256	0.242	0.442
Sargan P-value	0.264	0.327	0.359	0.173	0.259	0.487	0.345	0.272	0.126	0.201	0.285	0.378

*Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.*

Table 2D. The effect of FDI nexus institutions on growth for America group

Institutional Variables	Government Stability	Socio-economic Conditions	Internal Conflict	External Conflict	Investment profile	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountability	Bureaucracy Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Y_{it-1}	1.027***	1.00***	1.001***	1.017***	1.018***	1.026***	1.005***	1.026***	1.009***	1.024***	1.012***	1.002***
	(0.0120)	(0.0137)	(0.0132)	(0.0122)	(0.0159)	(0.0143)	(0.0120)	(0.0158)	(0.0118)	(0.0123)	(0.0118)	(0.0109)
G	-0.06***	-0.08***	-0.10***	-0.09***	-0.09***	-0.056**	-0.092***	-0.0494**	-0.0359	-0.081***	-0.07***	-0.0437**
	(0.0204)	(0.0231)	(0.0217)	(0.0256)	(0.0215)	(0.0235)	(0.0217)	(0.0209)	(0.0251)	(0.0192)	(0.0236)	(0.0215)
GFCF	0.0765**	-0.0255	-0.0292	-0.115**	0.0739**	-0.0888*	-0.076**	-0.0346	-0.0331	-0.0174	0.0604	0.00165
	(0.0349)	(0.0418)	(0.0456)	(0.0529)	(0.0333)	(0.0496)	(0.0365)	(0.0574)	(0.0465)	(0.0405)	(0.0434)	(0.0411)
INFRA	0.0401	-0.140*	0.0745	0.0272	0.0741	0.0550	0.0241	-0.0308	0.0621	-0.0731	0.00195	-0.0144
	(0.0844)	(0.0724)	(0.0601)	(0.0561)	(0.0785)	(0.0592)	(0.0619)	(0.0507)	(0.0651)	(0.0556)	(0.0568)	(0.0603)
CREATION	-0.02***	0.00231	0.0105	0.00124	-0.00585	-0.00805	-0.00158	-0.00730	0.00157	-0.00858	-0.00258	-0.00210
	(0.00761)	(0.0078)	(0.00754)	(0.00710)	(0.0101)	(0.00794)	(0.00682)	(0.00861)	(0.00722)	(0.00638)	(0.00720)	(0.00636)
HK	-0.0925	0.219**	-0.137**	-0.0556	-0.0759	-0.0671	0.0247	-0.0668	-0.0924	0.0618	-0.0767	-1.12e-05
	(0.106)	(0.111)	(0.0690)	(0.0725)	(0.102)	(0.0852)	(0.0890)	(0.0740)	(0.0843)	(0.0688)	(0.0734)	(0.0652)
TRADE	-0.0220	0.0466**	0.0421**	0.063***	0.0256	0.0661**	0.0407**	0.0334	0.0715**	0.0209	0.00304	0.0129
	(0.0253)	(0.0226)	(0.0200)	(0.0226)	(0.0193)	(0.0262)	(0.0206)	(0.0262)	(0.0301)	(0.0210)	(0.0213)	(0.0213)
FDI	0.0226	0.0166	0.00488	-0.00521	0.0102	-0.0157	-0.0103	0.0202*	0.021	0.0177	0.0206*	0.0101
	(0.0132)	(0.0113)	(0.0111)	(0.0111)	(0.00999)	(0.0111)	(0.0104)	(0.0114)	(0.0137)	(0.0117)	(0.0124)	(0.0119)
FDI*(INST≤ γ)	0.00647	-0.0253	-0.0614	-0.00693	-0.23***	0.0566	0.0412	0.241***	-0.95***	0.0348	-0.0339	0.272
	(0.0928)	(0.0433)	(0.0722)	(0.0725)	(0.0812)	(0.0913)	(0.0345)	(0.0780)	(0.224)	(0.0696)	(0.0378)	(0.455)
FDI*(INST>γ)	0.0111*	0.00110	-0.00617	0.00149	-0.00605	-0.00150	0.00575	-0.0104	0.0293*	0.0839*	-0.00522	0.00527
	(0.006)	(0.0094)	(0.0059)	(0.0065)	(0.0047)	(0.0054)	(0.0036)	(0.0072)	(0.0072)	(0.0045)	(0.0049)	(0.0046)
δ_1	-0.126	0.0649	0.137	0.0433	-0.65***	-0.207	-0.126	-0.95***	2.414	-0.196	0.0579	-0.844
	(0.258)	(0.0994)	(0.192)	(0.228)	(0.244)	(0.347)	(0.110)	(0.326)	(0.587)	(0.248)	(0.117)	(1.388)
Threshold γ	0.38	0.38	0.42	0.51	0.35	0.33	0.41	0.51	0.20	0.40	0.45	0.24
Constant	-0.329*	0.00788	0.242	0.212	-0.239	-0.0282	0.315	-0.212	-0.151	-0.104	-0.162	-0.00772
	(0.182)	(0.161)	(0.177)	(0.189)	(0.234)	(0.183)	(0.194)	(0.187)	(0.186)	(0.184)	(0.191)	(0.181)
Observations	992	992	992	992	992	992	992	992	992	992	992	992
Number of id	31	31	31	31	31	31	31	31	31	31	31	31
AR(2) P-value	0.281	0.247	0.353	0.263	0.275	0.153	0.147	0.380	0.281	0.350	0.241	0.132
Sargan P-value	0.260	0.175	0.196	0.186	0.174	0.456	0.325	0.197	0.182	0.196	0.166	0.272

Table 2E. The effect of FDI nexus institutions on growth for Asia group

Institutional Variables	Government Stability	Socio-economic Conditions	Internal Conflict	External Conflict	Investment profile	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountability	Bureaucracy Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Y_{it-1}	0.704***	0.737***	0.561***	0.634***	0.560***	0.724***	0.754***	0.669***	0.65***	0.91***	0.82***	0.752***
	(0.111)	(0.124)	(0.0773)	(0.0887)	(0.0797)	(0.115)	(0.120)	(0.109)	(0.111)	(0.128)	(0.120)	(0.148)
G	0.0177	0.455	-0.215	0.307	0.577*	-0.145	0.0650	-0.0835	0.0663	0.261	-0.0841	0.436
	(0.436)	(0.350)	(0.272)	(0.394)	(0.300)	(0.409)	(0.350)	(0.395)	(0.377)	(0.454)	(0.457)	(0.478)
GFCF	-0.549	-0.344	-0.986***	-0.668*	-0.613	-0.384	-0.293	-0.679	-0.938*	-0.191	-0.130	-0.187
	(0.621)	(0.414)	(0.328)	(0.356)	(0.388)	(0.495)	(0.416)	(0.490)	(0.514)	(0.430)	(0.427)	(0.304)
INFRA	-0.0203*	-0.0181	-0.0229**	-0.040***	-0.02***	-0.0158	-0.0145	-0.0304**	-0.029**	-0.0145	-0.0128	-0.0241
	(0.0116)	(0.0141)	(0.0100)	(0.0150)	(0.0103)	(0.0144)	(0.0160)	(0.0148)	(0.0141)	(0.015)	(0.0160)	(0.0150)
CREATION	0.255*	0.166	0.379***	0.329***	0.279***	0.225*	0.217*	0.289***	0.318**	0.0528	0.168	0.128
	(0.135)	(0.118)	(0.0844)	(0.0933)	(0.0891)	(0.134)	(0.125)	(0.111)	(0.126)	(0.135)	(0.124)	(0.133)
HK	-0.0639	-0.571	0.336	-0.680	-0.172	-0.0365	-0.351	-0.235	-0.422	-0.218	-0.485	-0.274
	(0.530)	(0.616)	(0.478)	(0.647)	(0.418)	(0.713)	(0.696)	(0.581)	(0.671)	(0.704)	(0.667)	(0.672)
TRADE	0.0312	0.0543	0.104**	0.0840	0.0693	-0.0283	-0.0815	-0.138	-0.0221	-0.0238	0.0868	-0.0860
	(0.0770)	(0.0806)	(0.0426)	(0.128)	(0.0546)	(0.0988)	(0.126)	(0.110)	(0.133)	(0.142)	(0.146)	(0.0765)
FDI	0.0152	0.184	-0.0178	-0.0181	0.272***	0.0754	-0.200*	0.102	0.0949	0.0516	-0.0380	0.288
	(0.217)	(0.135)	(0.124)	(0.129)	(0.0921)	(0.126)	(0.140)	(0.152)	(0.197)	(0.192)	(0.178)	(0.195)
FDI*(INST≤ γ)	0.129	0.748	-0.271	1.328	-0.128	0.057	-0.0807*	0.799	0.534	0.071	-0.0899	-0.386
	(0.316)	(0.705)	(0.818)	(0.803)	(0.543)	(1.121)	(0.786)	(1.157)	(1.227)	(0.135)	(0.565)	(1.099)
FDI*(INST>γ)	0.00720	0.124	0.0537	0.110*	0.0309	0.0226	0.0445*	0.0314	0.00914	0.0273	0.0702*	-0.0177
	(0.076)	(0.106)	(0.079)	(0.093)	(0.062)	(0.095)	(0.061)	(0.063)	(0.12)	(0.076)	(0.066)	(0.073)
δ_1	-0.526*	-0.879	0.121	-0.007	0.579	-0.572*	-0.254	-0.243	-0.117	-0.468	0.851	0.638
	(0.97)	(1.363)	(0.331)	(0.374)	(1.781)	(3.924)	(0.455)	(0.531)	(1.918)	(0.657)	(1.848)	(0.273)
Threshold γ	0.80	0.31	0.29	0.40	0.36	0.28	0.33	0.30	0.26	0.19	0.5	0.29
Constant	1.101	1.619	0.495***	0.922**	0.040**	1.707	0.491*	0.498**	0.670**	0.777	1.991	0.552
	(0.772)	(0.584)	(0.845)	(0.403)	(0.914)	(0.412)	(0.052)	(0.788)	(0.883)	(0.779)	(0.681)	(0.767)
Observations	1,088	1,088	1,088	1,088	1,088	1,088	1,088	1,088	1,088	1,088	1,088	1,088
Number of id	34	34	34	34	34	34	34	34	34	34	34	34
AR(2) P-value	0.186	0.190	0.262	0.188	0.182	0.155	0.308	0.165	0.192	0.141	0.287	0.432
Sargan P-value	0.475	0.518	0.442	0.448	0.429	0.504	0.562	0.531	0.502	0.562	0.539	0.532

*Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.*

Table 2F. The effect of FDI nexus institutions on growth for SSA group

Institutional Variables	Government Stability	Socio-economic Conditions	Internal Conflict	External Conflict	Investment profile	Corruption	Military in Politics	Religious Tensions	Law and Order	Ethnic Tensions	Democratic Accountability	Bureaucracy Quality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Y_{it-1}	0.952***	1.020***	0.907***	0.992***	0.976***	1.027***	1.001***	1.00***	1.027***	0.976***	0.959***	0.998***
	(0.0231)	(0.0198)	(0.0227)	(0.0222)	(0.0200)	(0.0214)	(0.0188)	(0.0195)	(0.0257)	(0.0199)	(0.0169)	(0.0174)
G	0.0540	-0.0284	0.0588	0.00811	0.0224	-0.0243	-0.0354	-0.0692*	-0.0564*	-0.00305	0.00797	-0.0205
	(0.0436)	(0.0408)	(0.0393)	(0.0392)	(0.0415)	(0.0421)	(0.0364)	(0.0381)	(0.0327)	(0.0379)	(0.0336)	(0.0434)
GFCF	-0.0660**	-0.0191	0.0376	-0.00218	-0.0395	0.0298	0.0591**	0.0558	0.0783**	0.0390	-0.0106	-0.00023
	(0.0312)	(0.0335)	(0.0348)	(0.0417)	(0.0440)	(0.0479)	(0.0275)	(0.0354)	(0.0362)	(0.0349)	(0.0355)	(0.0317)
INFRA	0.025***	-0.00344	0.00907*	0.00745	0.00604	-0.00222	0.000819	-0.0153*	0.0171**	-0.00134	0.00222	-0.00946
	(0.00534)	(0.00607)	(0.00477)	(0.00776)	(0.00567)	(0.00981)	(0.00747)	(0.0088)	(0.0070)	(0.00496)	(0.006)	(0.00754)
CREATION	-0.00521	-0.0163	0.0290	-0.0376	-0.0256	-0.0421**	-0.00694	-0.00607	-0.0190	-0.034**	0.0111	-0.00725
	(0.0220)	(0.0136)	(0.0212)	(0.0229)	(0.0207)	(0.0190)	(0.0145)	(0.0135)	(0.0199)	(0.0166)	(0.0171)	(0.0138)
HK	-0.00368	0.0754*	0.0121	0.107*	0.124**	0.0222	0.0793	0.15***	0.0466	0.155***	0.0155	0.0488
	(0.0356)	(0.0432)	(0.0518)	(0.0552)	(0.0542)	(0.0428)	(0.0647)	(0.0478)	(0.0525)	(0.0491)	(0.0389)	(0.0436)
TRADE	0.173***	0.00543	0.136***	0.0708	0.0697*	0.0467	-0.00371	-0.0107	-0.0553*	0.0490	0.0752**	0.0216
	(0.0312)	(0.0371)	(0.0393)	(0.0481)	(0.0378)	(0.0427)	(0.0352)	(0.0407)	(0.0328)	(0.0310)	(0.0316)	(0.0329)
FDI	-0.0300**	0.00365	-0.0322*	-0.0164	-0.0252*	-0.00326	-0.0118	-0.0176	-0.0111	-0.0158	-0.04***	-0.00670
	(0.0140)	(0.0171)	(0.0165)	(0.0129)	(0.0131)	(0.0129)	(0.0148)	(0.0128)	(0.0187)	(0.0184)	(0.0137)	(0.0181)
FDI*(INST≤ ɣ)	-1.841***	0.977***	-1.162**	-0.903***	-0.184	-0.200	1.564	0.136	-0.889***	-0.817	0.209	0.537*
	(0.345)	(0.376)	(0.489)	(0.302)	(0.186)	(0.580)	(0.349)	(0.235)	(0.259)	(0.583)	(0.134)	(0.280)
FDI*(INST>ɣ)	0.119***	0.0170	0.000270	0.00860	0.0145*	0.0143**	-0.00227	-0.0126*	0.00100	0.0112	0.022***	0.0119*
	(0.0069)	(0.011)	(0.010)	(0.012)	(0.0083)	(0.0069)	(0.0058)	(0.007)	(0.0107)	(0.0091)	(0.0075)	(0.0061)
δ_1	-0.059***	-0.42***	0.832	-1.494**	0.298	0.890	-0.083	-0.643	-0.997**	0.387	-0.697	-1.670*
	(1.658)	(1.384)	(0.445)	(1.439)	(0.839)	(1.682)	(0.072)	(0.837)	(0.981)	(2.574)	(0.502)	(0.938)
Threshold ɣ	0.15	0.11	0.15	0.3	0.2	0.15	0.12	0.2	0.17	0.15	0.17	0.2
Constant	-0.287	-0.0937	0.0736	-0.362	-0.0761	-0.625**	-0.0100	0.202	-0.0489	-0.213	0.144	-0.0244
	(0.320)	(0.222)	(0.251)	(0.302)	(0.275)	(0.277)	(0.204)	(0.223)	(0.272)	(0.221)	(0.260)	(0.236)
Observations	1,024	1,024	1,024	1,024	1,024	1,024	1,024	1,024	1,024	1,024	1,024	1,024
Number of id	32	32	32	32	32	32	32	32	32	32	32	32
AR(2) P-value	0.526	0.522	0.568	0.156	0.143	0.348	0.217	0.264	0.129	0.248	0.295	0.161
Sargan P-value	0.172	0.154	0.172	0.178	0.162	0.274	0.255	0.267	0.265	0.264	0.262	0.161

*Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10.*

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L'EFFET DES INVESTISSEMENTS DIRECT ETRANGERS SUR LA CROISSANCE : L'EXISTENCE DE SEUILS INSTITUTIONNELS

Résumé *- Cet article analyse l'effet des investissements directs étrangers (IDE) sur la croissance économique et montre le rôle joué par la qualité des institutions dans cinq régions (Afrique subsaharienne, MENA, Europe, Asie et Amérique) pour la période 1984-2013. En utilisant la méthode de GMM en système, les résultats du modèle mettent en évidence le rôle du développement institutionnel dans la relation IDE-croissance et révèlent l'existence d'un seuil institutionnel, calculé selon la méthode de Caner et Hansen (2004), pour chaque groupe (excepté l'Amérique) au-delà duquel les IDE impactent positivement la croissance. L'analyse détaillée des indicateurs institutionnels fait apparaître que la stabilité politique et le respect des lois sont les composantes clés à travers lesquelles les IDE tendent à affecter la croissance.*

Mots-clés - INVESTISSEMENT DIRECT ETRANGER, CROISSANCE, EFFET DE SEUIL, INSTITUTIONS